

REMARKS

Claims 1-39 are pending in this application. By this Amendment, (1) claims 1, 20, 21 and 24 are amended to recite that the metal layer is a continuous metal layer so as to better define the invention with respect to the prior art, (2) claims 21 and 24 are amended to remove the recitation that the adhesion with the metal layer is sufficient to pass the Tesa tape test as such is unnecessary to define the invention over the prior art; these limitations are retained in new dependent claims 38 and 39, respectively, with the dependency of claim 22 being amended to depend from claim 38, (3) claims 34 and 36 are amended to correct a typographical error, and (4) claims 35 and 36 are re-numbered to claims 36 and 37, respectively, in view of a prior misnumbering of claims that resulted in the presence of two claims 35.

No new matter is added by this Amendment. The amendment to claims 1, 20, 21 and 24 is supported in the original specification at, for example, paragraph [0006], second sentence. The amendment to claim 22 and new claims 38 and 39 to delete the term "Tesa," objected to by the Patent Office, is not new matter as the term "tape test" clearly refers to the tape test described at, e.g., paragraph [0014] of the specification in which a well known Tesa tape is used.

I. **Rejection Under 35 U.S.C. §112, Second Paragraph**

Claims 21-36 were rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite. Specifically, it was alleged that the term "Tesa" was a trademark/trade name that could not be used in the claims.

By this Amendment, independent claims 21 and 24 have each been amended to delete reference to the passing of the tape test. Thus, as to claims 21 and 23-37, this rejection is clearly overcome.

Second, dependent claim 22 and new dependent claims 38 and 39 recite that the adhesion is such that the material passes a tape test, thereby removing use of the term "Tesa" objected to in the Office Action. The recitation of "tape test" in claims 22, 38 and 39 is sufficient to refer to the tape test detailed in the specification at, for example, paragraph [0014]. The Patent Office acknowledged that the description of the tape test is sufficient to enable the practice of such test.

The term "Tesa" was used in the specification, for example, at paragraph [0014], as a descriptive identifier of the type of tape used in conducting the tape test. As well understood by one of ordinary skill in the art, Tesa tape is a transparent tape that is strongly adherent and resistant to breaking. See, for example, the attached copy of a box of Tesa tape of the type used in the tape test described in the present specification. On the box, "kristall-klar" means transparent and "stark klebend & reißfest" means strongly adherent and resistant to breaking. Such Tesa tape is well known in the art, and well known to be used in determining adhesive strength as in the present application.

In order to avoid confusion as to whether or not the term "Tesa" in the claims is used merely descriptively or is used as an impermissible trademark, Applicants have amended claim 22 and phrased new claims 38 and 39 so as to delete the term "Tesa." It is evident to one of ordinary skill in the art that the reference to the tape test in these claims refers to the tape test conducted using Tesa tape as described in the specification.

For at least the foregoing reasons, Applicants respectfully submit that the claims are clear and definite in accordance with the requirements of 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of this rejection are respectfully requested.

I. Rejections Under 35 U.S.C. §103(a)

A. Lim In View of Maekawa

Claims 20, 21, 23, 25, 26 and 31-33 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,187,696 (Lim) in view of U.S. Patent No. 4,637,947 (Maekawa). This rejection is respectfully traversed.

The Patent Office acknowledged that Lim does not teach or suggest the inclusion of a metal layer in a water-vapor-permeable, watertight, heat reflecting composite, but alleges that it would have been obvious to provide the composite sheet of Lim with a metal layer with the motivation of improving the heat insulation characteristics of the laminate as allegedly taught by Maekawa. Applicants respectfully disagree.

Lim describes a moisture vapor permeable, substantially liquid impermeable composite sheet material comprised of a fibrous substrate and a moisture vapor permeable thermoplastic film layer that may be a polyether block copolymer such as a copolymer comprised of block copolyetheresters or block copolyether amides. See the Abstract and col. 5, lines 7-11.

At col. 4, lines 18-19, Lim describes that the preferred composite sheet is substantially free of micropores and substantially no liquid moisture passes through the sheet. Lim thus requires a substantially nonporous substrate as one component of the composite.

Maekawa discloses a heat insulation material in which a fibrous sheet material is used to support a metal. See the Abstract. At col. 2, lines 10-22, it is described that the supporting material is composed of, for example, non-woven fabrics, woven fabrics and knitted textiles. The manufacturing process can be classified into two cases: (1) one case in which the fibers are made to a fabric form together and the reflecting layer of metal is vacuum deposited or transferred onto the surface of the supporting material, and (2) a second case in which a reflecting layer is deposited on yarn surfaces while the fabric or knitted textile is kept in yarn

condition and then finished yarns are knitted or woven to make the reflecting layer of the surface of the supporting material. At col. 2, line 67 to col. 3, line 8, it is described that the fibrous sheet material having such a reflecting layer as made by the foregoing methods is formed such that even in the case of vacuum deposition or in the case of transfer, the reflecting layer is formed only on one surface of the yarns constituting the fibrous sheet material and no reflecting layer is present in other portions. "Therefore, if the material is of knitted fabric, the knitted mesh parts are left as spacings, resulting in forming non-continuous porous film surfaces as the reflecting layer and having full of permeability."

Thus, as explained in Maekawa, the non-woven, woven or knitted fibrous sheet material includes interstices between the fibers of the fibrous sheet material that are left as spacings, resulting in the formation of a non-continuous porous film as the reflecting layer, and deriving a fibrous sheet still full of permeability.

Thus, Maekawa clearly teaches that the reflecting layer is a non-continuous metal layer and teaches that the fibrous sheets supporting the metal layer must include pores, i.e., spacings.

Claims 20, 21 and 24, to the contrary, require that the reflecting layer be a continuous metal layer and require that the support of the metal layer be non-porous. Thus, even if one of ordinary skill in the art were to have combined the teachings of Lim and Maekawa as alleged in the Office Action, the presently claimed invention still would not have been achieved because Maekawa at best suggests a non-continuous metal layer.

Further, Applicants respectfully submit that one of ordinary skill in the art would not have combined the teachings of Lim and Maekawa as alleged in the Office Action. As was discussed above, Lim requires the presence of a substantially non-porous substrate, whereas the teachings of Maekawa are directed exclusively to forming a non-continuous metal layer upon a porous fibrous substrate. In view of the different substrate materials, one of ordinary

skill in the art would not have extracted the teachings of Maekawa and attempted to form a non-continuous metal layer upon the different, non-porous substrate of Lim.

The Patent Office cited col. 1, lines 11-15 of Maekawa. Here, Maekawa describes prior art in which a metal film was deposited on a synthetic resin film. However, as described at col. 1, lines 15-22 of Maekawa, this type of material has no permeability, and the arrangement of a metal deposited surface over the entire surface of the sheet, i.e., a continuous metal layer, caused the sheet to be lacking in permeability. Thus, here again, such teachings of Maekawa would not have led one of ordinary skill in the art to the claimed water-vapor-permeable, watertight composite of claims 20, 21 and 24.

Maekawa belongs to that class of prior art from which the present invention started. That is, in the prior art, it was taught that it was necessary that for heat reflection and water vapor permeability, a metal must be formed as a discontinuous layer (1) on the surface and on the pore walls of a microporous membrane as mentioned at paragraph [0002] of the present specification or (2) on the surface of fibers forming a fibrous support as described in Maekawa. In the metallization of a non-porous water-vapor-permeable and watertight substrate as described by Lim, it was to be expected that formation of a continuous metal layer would result in a composite that is no longer water-vapor-permeable. See paragraph [0006] of the present specification describing that it is known from the field of packaging films that films can be provided with a thin metal layer to form a vapor barrier.

Thus, it is quite surprising in the present invention that a water-vapor-permeable, watertight, heat-reflecting composite could be comprised of a continuous metal layer and a nonporous, water-vapor-permeable, watertight, hydrophilic flat substrate as recited in claims 20, 21 and 24. Such composites are not only heat reflecting, but also water-vapor-permeable to a significant extent. It is even more surprising that the composites, even at 100% heat reflection, exhibit a water-vapor permeability that is only slightly reduced compared to a non-

metallized, nonporous substrate. See paragraph [0007] and the Example in the present specification.

Thus, as extensively discussed above, Applicants respectfully submit that one of ordinary skill in the art would not have attempted to apply the metal layer from the porous substrate of Maekawa to the nonporous substrate of Lim, and further that even if one were to have done so (for example, through the use of impermissible hindsight), the resulting composite would include a non-continuous metal layer as described in Maekawa, and thus the presently claimed invention still would not have been achieved. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

B. Horn in View of Maekawa

Claims 20, 21, 23, 25, 26 and 31-33 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,447,783 (Horn) in view of Maekawa. This rejection is respectfully traversed.

Horn discloses that vapor permeable, waterproof bicomponent film structures from a hydrophobic copolyetherester elastomer film layer and a hydrophilic copolyetherester elastomer film layer are known and often bonded to a textile material to result in a breathable, waterproof fabric. See col. 1, lines 7-13. Horn thus differs from the presently claimed invention in not only failing to teach or suggest the inclusion of a metal layer adhered to the substrate surface, but also in failing to teach or suggest a nonporous, water-vapor-permeable, watertight, hydrophilic flat substrate. Horn clearly teaches the requirement of a combination of a hydrophobic and hydrophilic film to form a bicomponent film substrate.

Nothing in Maekawa remedies the deficiencies of Horn. First, nothing in Maekawa teaches or suggests that a substrate to be used must be hydrophilic, much less nonporous and hydrophilic. Second, as was extensively discussed above, Maekawa at best teaches the use of

a non-continuous metal layer upon a porous substrate, and thus would not have suggested the use of a continuous metal layer as required in the present invention.

Still further, also as discussed above, Maekawa teaches that the non-continuous metal layer must be formed upon a porous substrate, and thus one of ordinary skill in the art would not have combined the teachings of Horn and Maekawa as alleged in the Office Action. That is, one of ordinary skill in the art would not have extracted the teachings of Maekawa regarding forming a metal layer upon a porous substrate and attempted to have applied such a metal layer to a very different, nonporous substrate as described in Horn.

Thus, Applicants respectfully submit that the teachings of Horn and Maekawa would not have been combined by one of ordinary skill in the art, and further submit that even if combined, the presently claimed invention still would not have been achieved.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

C. Horn and Maekawa in View of Segawa

Claims 27 and 28 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Horn and Maekawa in view of U.S. Patent No. 4,068,034 (Segawa). This rejection is respectfully traversed.

Segawa discloses a heat-insulation material obtained by adhering a metal layer to one surface of a polyvinylidene fluoride film. However, polyvinylidene fluoride is well known to be both hydrophobic and vapor impermeable. As such, Segawa does not at all teach or suggest a composite that is heat-reflecting and water-vapor-permeable, and that exhibits a hydrophilic substrate. Moreover, nothing in Segawa remedies the extensive deficiencies of Horn and Maekawa discussed above.

For the foregoing reasons, Applicants respectfully submit that nothing in Horn, Maekawa and Segawa would have led one of ordinary skill in the art to the presently claimed invention. Reconsideration and withdrawal of this rejection are respectfully requested.

D. Horn in View of Maekawa and Further in View of Lim

Claims 34-36 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Horn in view of Maekawa and further in view of Lim. Lim was relied upon as allegedly suggesting the area density and thickness as recited in claims 34 and 36.

The deficiencies of Horn, Maekawa and Lim were all extensively discussed above. Applicants respectfully submit that one of ordinary skill in the art would not have combined the teachings of these references, and moreover that even if combined, one of ordinary skill in the art would not have been led to the presently claimed invention. That is, Lim remedies none of the deficiencies of Horn and Maekawa discussed above.

For the foregoing reasons, Applicants respectfully submit that none of Horn, Maekawa and Lim teach or suggest the presently claimed invention. Reconsideration and withdrawal of this rejection are respectfully requested.

III. Rejoinder


Claims 1-19, presently withdrawn from consideration, are directed to a process of making the claimed composites of the elected product claims. As such, upon allowance of the product claims, non-elected process claims 1-19 should be rejoined with the application and similarly allowed.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-39 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


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